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CLAIM AMENDMENTS

1. (Currently Amended) A process for forming a nanosize ceramic powder comprising:

forming a precursor ceramic material comprising a fugitive constituent and a non-soluble constituent in a single phase;

decomposing the fugitive constituent to leave the non-soluble constituent by contacting the precursor ceramic material with a selective solvent to form a solution of the fugitive constituent in the solvent and a non-dissolved residue of the non-soluble constituent,

the precursor ceramic material being sufficiently reactive with the solvent to form the solution of the fugitive constituent in the solvent and form the non-dissolved residue of the non-soluble constituent,

the precursor ceramic material and the non-soluble-dissolved residue being sufficiently insoluble in the solvent such that there is essentially no precursor ceramic material and non-soluble-dissolved residue in the solution that will deposit and precipitate upon the residue of the non-soluble constituent,

the fugitive constituent being sufficiently soluble in the solvent such that the decomposing is without deposition or precipitation of dissolved fugitive constituent upon the residue of the non-soluble constituent,

removing the solution of the fugitive constituent from the residue to form a nanosize powder of the residue of the non-soluble constituent.

2. (Currently Amended) The process as in Claim 1 wherein the precursor ceramic material is $BaCe_{0.9}RE_xO_{3.4}$ or $SiCe_{1-x}RE_xO_{3.1}$ and the composition of the nanosize powder is $Ce_{1-x}RE_xO_{2.4}$ where RE is a rare earth metal or Y, x is between 0 and about 0.25, and Si is between 0 and about 0.13.

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3. (Currently Amended) The process as in Claim 1 wherein the precursor ceramic material is $\text{SrZr}_{1-x}\text{RE}_x\text{O}_3$ or $\text{Ba}_2\text{Fe}_{1-x}\text{RE}_x\text{O}_6$, $\text{BaZr}_{1-x}\text{RE}_x\text{O}_4$, and the composition of the nanosize powder is $\text{Zr}_{1-x}\text{RE}_x\text{O}_{2.5}$ where RE is a rare earth metal or Y, x is between 0 and about 0.25, and 8 \bar{g} is between 0 and about 0.13.

4. (Original) The process as in Claim 1 wherein the composition of the resultant-nanosize powder is Al_2O_3 .

5. (Currently Amended) The process as in Claim 3 wherein the precursor ceramic material is selected from the group consisting of BaAl_2O_6 , $\text{Ba}_3\text{Al}_2\text{O}_9$, and NaAlO_2 , NaAlO_2 .

6. (Currently Amended) The process as in Claim 1 wherein the composition of the resultant-nanosize powder is Cr_2O_3 .

7. (Currently Amended) The process as in Claim 6 wherein the precursor ceramic material is MgCr_2O_4 .

8. (Currently Amended) The process as in Claim 1 wherein the composition of the resultant-nanosize powder is ZrO_2 .

9. (Currently Amended) The process as in Claim 8 wherein the precursor ceramic material is BaZrO_3 .

10. (Currently Amended) The process as in Claim 1 wherein the composition of the resultant-nanosize powder is TiO_2 .

11. (Currently Amended) The process as in Claim 10 wherein the precursor ceramic material is MgTiO_3 , or Mg_2TiO_5 .

12. (Original) The process as in Claims 1 wherein the composition of the non-soluble constituent and the nanosize powder is V_2O_5 .

13. (Currently Amended) The process as in Claim 12 wherein the precursor

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ceramic material is Na₂V₂O₅ Na₂V₂O₇.

14. (Original) The process as in Claim 1 wherein the selective solvent is water.

15. (Currently Amended) A process for forming a nanosize ceramic powder comprising:

forming a precursor ceramic material comprising a fugitive constituent and a non-soluble constituent in a single phase;

decomposing the fugitive constituent to leave the non-soluble constituent by contacting the precursor ceramic material with a selective solvent to form a solution of the fugitive constituent in the solvent and a non-dissolved residue of the non-soluble constituent, the precursor ceramic material being sufficiently reactive with the solvent to form the solution of the fugitive constituent in the solvent and form the non-dissolved residue of the non-soluble constituent,

the precursor ceramic material and the non-soluble dissolved residue being sufficiently insoluble in the solvent such that there is essentially no precursor ceramic material and non-soluble dissolved residue in the solution that will deposit and precipitate upon the residue of the non-soluble constituent,

the fugitive constituent being sufficiently soluble in the solvent such that the decomposing is without deposition or precipitation of dissolved fugitive constituent upon the residue of the non-soluble constituent,

removing the solution of the fugitive constituent from the residue to form a nanosize powder of the residue of the non-soluble constituent, where the selective solvent is an acid.

16. (Currently Amended) The process as in Claim 15 wherein the acid is selected from the group consisting of HNO₃, HCl, H₂CO₃ and H₂SO₄.

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17. (Currently Amended) The process as in Claim 15 wherein the acid is contacted with the precursor ceramic material is with an acid gas.

18. (Currently Amended) The process as in Claim 17 wherein the acid gas is SO₂, N₂O₃, CO₂ or HCl [HCl].

19. (Original) The process as in Claim 1 wherein the selective solvent is a reacting gas dissolved in a non-aqueous polar solvent.

20. (Currently Amended) The process as in Claim 19 wherein the polar solvent is selected from the group consisting of formamide, N-Methyl-acetamide, N-Methyl-formamide, N-Methyl-propionamide, propylene carbonate, and ethylene carbonate, and the reacting gas is selected from the group consisting of CO₂, SO₂, SO₃ and N₂O₃.

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)